CAN YOU THINK LIKE A BEE?

Maybe I should "rattle" your brain by asking you: "Can a bee really THINK?" When you HARVEST honey, do the bees interpret that action as robbing them of something they have collected and made? Does a bee know it is going to DIE if it stings you? If a bee stings you, was that bee ANGRY with you? If a bee emerges from its birth cell on a warm May 15th and lives its short life of just 6 weeks, it is dead before July 4th; hence WHAT DOES IT KNOW ABOUT THE COLD OF WINTER, or why is it "busy as a bee" nectar collecting for colony survival? WHO or WHAT directs a bee to perform a certain task; e.g., cleaning a cell, comb building, feeding larva, or guarding the hive entrance? Which bees go off with a swarm and which adult bees stay behind? Who picks out the location of the new home for the swarm? Who supervises worker cell comb building, so that regardless of whether the bees are Italians, Carniolans, Buckfast, or even Uncle Charlie's, there are always 55.3 cells per square inch; and they do this without a set of plans or a ruler. Have YOU thought about these things during the time of your experience with bees?

When you "can THINK like a bee", you are beginning to understand the complexities of bee behavior which I firmly believe is the "dividing line" between being thought of as a beeHAVER or a beeKEEPER. Perhaps the beeHAVER's bees sometimes might produce some surplus honey, or indeed, even a record crop; however, only the beeKEEPER will ever experience the many diverse JOYS OF BEEKEEPING.

HOW does a bee think? I assure you that a bee does NOT think like a human. Much of our human thinking processes are initiated and deeply used as a result of our human senses of sight and hearing, whereas our sense of smell does not seem very important to us. In complete contrast to the important senses of the human is the fact that a bee has no sense of hearing and has relatively poor eyesight even with its five eyes; but its sense of smell, olfactory nerves, is the most highly developed sense of a honey bee. A bee uses its sense of odor to determine if another bee is her hive mate or a stranger, the odor of a flower guides a bee to the nectar of the flower, a "lost" colony member is guided home by other bees fanning the odor of their Nassanoff gland towards their lost sisters or brothers, the odor of bee venom (as in banana oil), primarily iso-pentyl acetate is the well known "sting alarm" of the bee, and now we use the chemical, geraniol, as an artificial pheromone for attracting swarms.

Unfortunately, we humans are inherently biased; and hence we tend to ascribe human attributes to bees. We believe that bees think as we think, have an awareness of events or other happenings around their home or their "work place" as they gather nectar or pollen, that they can plan ahead (like their gathering of nectar in May to make winter food), or that they can easily solve how to return to a hive after leaving via a cone shaped escape device. If you believe that a bee will do all those things that we humans would do under the same circumstances, that is ANTHROPOMORPHISM at its best! Bees have brains designed to direct the bee to best do the jobs that nature intended bees to do, and that does not require the human brain. Further, the deviations inherent in the human brain cause 10 people to use 10 different procedures to get to the same point, whereas, the thinking of a 24 day old worker bee for a given situation is identical for all other 24 day old worker bees confronting the same situation. Honey bees are social insects who

live for the good of the colony without individualistic concern for themselves; and their actions are governed by polyethism, i.e., perform tasks based on their age since their day of emergence.

Is today's bee any different than the honeybee of biblical time when Moses spoke of a certain area as "the land of milk and honey"? I do not know of any changes in man, horses, birds, or other animals, so there is good reason to think that the honey bee of today is no different than that which was in the Garden of Eden with Adam and Eve. We humans, armed with our ability to think, have made much progress in our style of living, because we have used our thinking ability to invent things, even the WHEEL. However, I am sure that there are no basic differences between Adam and Eve, Mark Anthony and Cleopatra, and Bill and Hillary Clinton. Accepting this premise, then we must realize that our only course of becoming a good beekeeper is to LEARN TO THINK LIKE A BEE, or study what researchers call "BEE BEHAVIOR".

You will perhaps think that I have "lost my mind" when I say that the arrival of the tracheal mite and the varroa mite into the U. S. just 15 years ago was maybe a "blessing in disguise". Why? The death of so many colonies of bees put great demand upon all phases of honey bee research to find a treatment for these mite pests, and this research opened channels of thought utilizing some of our ultra modern scientific tools of today; e. g. radar tracking of bee flight, and gluing a computer chip on a bee to follow all of its actions in the 6 weeks of life. As a scientist myself, I want you to be much aware of a severe human "natural" mistake that paralyzes research. During times when no new tools become available to gather factual information, we are left with only our imaginations to fill in the missing pages of the behavioral pattern of a bee. Over a period of time, these oft-repeated speculations and theories initiated by imaginations develop into the status of a FACT! This stifles further research because the question arises: Why investigate something when everybody thinks the answer is already known? Let me touch upon a major practical aspect to help you understand. HOW can you investigate the normal happenings inside a dark, closed beehive? We know that the slightest trace of smoke totally interrupts and changes the normal jobs of the bees in a hive. Further, since nature's home for a bee is the dark inside of a tree hollow and our Langstroth bee hives are dark inside, a glass observation hive in a lighted room is totally unnatural. Although some investigative studies have enlightened us greatly, using smoke or light for us to study bee behavior disrupts that behavior so that our findings might be meaningless. Now, micro chip transmitters coupled to a computer have entered the scene to illuminate new avenues of research of bee behavior. Oh, I wish I were younger, so that I reinstate myself as a research scientist. It makes me wonder how Sir Issac Newton, the discoverer of gravity, would enjoy being one of today's astronauts floating gravity-free in space.

Until recently, one problem in interpreting bee behavior has been caused by our rather sketchy knowledge of precisely how the bee senses its own world via its senses of vision, taste, smell, vibration (hearing), and touch. In the absence of this knowledge, we were reduced to speculation, and in doing so, we tended to apply our own human values, which were not objective. However, in the light of our present knowledge, no longer is there an excuse for such speculation. Bees, like other insects, are reacting like tiny robots to signals in their environment, because they are programmed genetically to react in a prescribed manner. In all probability bees are reacting without thought or awareness of the consequences of their behavior. Therefore, the use of bee handling techniques and colony management based upon the precepts designed by humans who have little knowledge of bee behavior usually results in many, or even, continuous failures and

only continues the human as a beeHANDLER rather than a beeKEEPER You must LEARN to THINK LIKE A BEE!.

Many of you readers have computers that gain almost instant information. Your parents had the telephone or the U.S. mail, and your grandparents used telegrams. Perhaps some of your ancestors communicated by Pony Express or Smoke Signals. TIME CHANGES THINGS! Because of the explosion of new findings due to the research demanded because of mites, viruses, and Africanized bees in the U. S., the writings and talks given by bee researchers, entomologists, geneticists, biologists, and other scientists should be given priority by you over all other learning methods so that you can become skilled in the correct procedures and techniques necessary for today's beekeepers Up until the past 15 years, we put our greatest trusts in the bee association meetings of the local beekeepers and the writings of many non-science oriented writers. Just as we use computers or word processors in place of typewriters, fuel injection in place of carburetors, microwave ovens in place of wood or coal fired stoves, ready to wear clothes instead of starch and ironing, and airplanes rather than trains to go across the U. S., we have to cast aside the "truths" and ways of the "good old boy" beekeeper and the books written prior to about 1992 because they are obsolete in not discussing the problems or wonders of the coming 21st century: such as mites, public fear of bees due to the Africanized Honey Bee, and the almost "untouched" knowledge of the importance of PHEROMONES to all BEE BEHAVIOR, and hence to good beekeeping!

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